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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,307	07/29/2003	Toshiaki Yoshihara	1100.68223	6440

24978 7590 04/18/2006

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EXAMINER	
SCHECHTER, ANDREW M	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/629,307	YOSHIHARA ET AL.	
	Examiner	Art Unit	
	Andrew Schechter	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,6-8 and 10-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8 and 10-12* is/are allowed.

6)☒ Claim(s) *1,3,6 and 7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 27 January 2006 have been fully considered but they are not persuasive.

The amendments to claim 1, in particular reciting "rubbing each of the alignment films in the same direction" overcomes the previous rejections in view of *Hasegawa* as argued by the applicant.

The amendment to claim 8 overcomes the previous rejection in view of *Hasegawa*, making it allowable for reasons analogous to claim 10.

The amendment to claim 1, in particular regarding the phase sequence, makes the claim differ from *Jones*, in that *Jones* discloses an Iso – Ch – SmA – SmC* phase sequence, while the claim requires an Iso – Ch – SmC* phase sequence (the previous claim 4 required either of these sequences). However, this does not make the claim allowable, as these two sequences are known to be art-recognized equivalents, as evidenced by *Togano* below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Jones,* U.S. Patent No. 6,307,610 in view of *Togano et al.,* U.S. Patent No. 6,310,677.

Jones discloses [see Fig. 2, etc.] a manufacturing method of a liquid crystal display device comprising two substrates each having an alignment film formed thereon sandwiching a liquid crystal having spontaneous polarization; and electrodes [5, 6], formed on the substrates, for applying a voltage to the liquid crystal, the liquid crystal showing a monostable state in which an average molecular axis of a director of liquid crystal molecules is aligned in a single direction when no voltage is applied, said method comprising the steps of: rubbing each of the alignment films in the same direction [col. 5, lines 18-31]; heating the liquid crystal [col. 5, line 64ff.]; and applying an electric field in a vicinity of a transition temperature from a higher temperature phase than chiral smectic C phase to the chiral smectic C phase in an alignment treatment which is performed to obtain the monostable state after heating [col. 6, lines 1-8, abstract, etc.].

Jones does not explicitly disclose the limitation of claim 1 that the electric field strength is more than 5 V/μm. *Jones* discloses using an AC voltage typically between 0.5 V and 5.0 V [col. 6, line 5] and a liquid crystal thickness about 1-6 μm [col. 4, line 66], which corresponds to a range of electric field strengths from about 0.1 V/μm to about 5 V/μm. This range and the recited range are close enough that those skilled in the art would have expected them to have the same properties, so a *prima facie* case of obviousness exists which has not been rebutted by evidence of criticality or unexpected

results [see MPEP 2144.05]. Furthermore, *Jones* teaches [col. 10, lines 48-53] that applying 0 V gave 20% of the desired texture, 0.5 V gave 60%, and 2 V gave nearly 100%. This constitutes a teaching that increasing the applied voltage (and hence increasing the electric field strength) is desirable in that it tends to produce more of the desired liquid crystal texture. The electric field strength is therefore a result-effective variable whose optimization would have been obvious to one of ordinary skill in the art at the time of the invention; it would therefore have been obvious to one of ordinary skill in the art at the time of the invention to use an electric field strength in the method of *Jones* which is more than 5 V/μm.

Jones does not disclose that the liquid crystal shows a phase sequence isotropic – cholesteric – chiral smectic C or isotropic – chiral nematic – chiral smectic C (either can be abbreviated Iso – Ch – SmC*) from a high temperature side to a low temperature side. Instead, *Jones* discloses a phase sequence of isotropic – cholesteric – smectic A – chiral smectic C [see col. 1, lines 19-23], abbreviated Iso – Ch – SmA – SmC*). However, it is an art-recognized equivalent in this context to use liquid crystals which have either of these two phase sequences, as evidenced by *Togano* [col. 11, lines 6-10]. It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to use an Iso – Ch – SmC* liquid crystal in the method of *Jones*, motivated by the art-recognized equivalence of liquid crystals having the two phase sequences.

Claim 1 is therefore unpatentable.

A temperature range of the vicinity of the transition temperature includes a temperature range of ± 2 °C from the transition temperature, so claim 3 is also unpatentable. A pretilt angle of the alignment films is not more than 2° [$\xi \sim 1.5°$, col. 10, lines 58-60, etc.], so claim 6 is also unpatentable.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Jones* in view of *Togano* as applied above, in view of *Miura et al.,* U.S. Patent No. 6,703,993.

Jones does not necessarily disclose a backlight driven by a field-sequential color scheme, with data-writing and data-erasure scanning voltages. *Miura* does disclose [see Fig. 8 and discussion thereof, etc.] a backlight driven by a field-sequential color scheme, with data-writing and data-erasure scanning voltages. It would have been obvious to one of ordinary skill in the art at the time of the invention to use these in the method of *Jones*, motivated by the desire for a high resolution display and *Miura*'s teaching that doing so allows a full-color image to be effectively displayed without undesired influence from the preceding frame period, thus improving the display image qualities [see col. 6, lines 34-60, for instance]. Claim 7 is therefore unpatentable.

Allowable Subject Matter

5. Claims 8 and 10-12 are allowed.

6. The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not disclose the device of claim 10, in particular the additional limitation that the control voltage for turning on the switching elements and the DC

voltage are at equal potential. Claim 10 is therefore allowed, along with dependent claims 11 and 12.

Similarly, the prior art does not disclose the device of claim 8, having all the limitations of claim 10; claim 8 is therefore allowed.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andrew Schechter
Primary Examiner
Technology Center 2800
15 April 2006